

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

10/512740

23 MAR 2005

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

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| <p>To:</p> <p>Hoiberg A/S St. Kongensgade 59A DK-1264 Copenhagen DANEMARK</p> | <p>RECEIVED 15 DEC. 2004 HOIBERG</p> |
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Date of mailing
(day/month/year) 13.12.2004

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| <p>Applicant's or agent's file reference P775PC00</p> | <p>IMPORTANT NOTIFICATION</p> | |
| <p>International application No. PCT/DK 03/00404</p> | <p>International filing date (day/month/year) 18.06.2003</p> | <p>Priority date (day/month/year) 19.06.2002</p> |
| <p>Applicant R & C Holding ApS et al.</p> | | |

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

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| <p>Name and mailing address of the international preliminary examining authority:</p> <p>European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465</p> | <p>Authorized Officer Biermaier, R Tel. +49 89 2399-2487</p> |
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PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference P775PC00 | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/DK 03/00404 | International filing date (day/month/year) 18.06.2003 | Priority date (day/month/year) 19.06.2002 |
| International Patent Classification (IPC) or both national classification and IPC H03L7/085 | | |
| Applicant R & C Holding ApS et al. | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I Basis of the opinion
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

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| Date of submission of the demand 16.01.2004 | Date of completion of this report 13.12.2004 |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized Officer Nicolaucig, A Telephone No. +49 89 2399-7670 |



INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

International application No. PCT/DK 03/00404

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-49 as published

Claims, Numbers

1-18 received on 28.10.2004 with letter of 25.10.2004

Drawings, Sheets

1/14-14/14 as published

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/DK 03/00404

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

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| Novelty (N) | Yes: Claims | 1-18 |
| | No: Claims | |
| Inventive step (IS) | Yes: Claims | 1-18 |
| | No: Claims | |
| Industrial applicability (IA) | Yes: Claims | 1-18 |
| | No: Claims | |

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 Reference is made to the following documents:

D1: US-A-6046643
D2: US-A-6075387

2 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):

a method (see figure) for determining a phase error (output of D/A) in response to a first signal (fref, clock input of ACCU2) and a second signal (clock input of ACCU1), said method comprising the steps of:

generating a first reoccurring trigger event (rising/falling edge on clock input of ACCU2) in response to the first signal,

generating a second reoccurring trigger event (rising/falling edge on clock input of ACCU1) in response to the second signal,

incrementing (col. 3, l. 18-20) a first phase value by a first predetermined increment value (aref) when the first trigger event occurs to obtain a first accumulated phase value (output of ACCU2) represented by a binary number,

incrementing a second phase value (col. 3, l. 17-18) by a second predetermined increment value when the second trigger event occurs to obtain a second accumulated phase value (output of ACCU1) represented by a binary number, and

calculating or determining (through H1, H3 and D/A) said phase error based on obtained first and second accumulated phase values, said phase error being represented by a binary number (output of D/A) or one or more analogue signals (input of D/A).

2.1 The subject-matter of claim 1 differs from this known method for determining a phase

error in that

said method further comprises the steps of resetting the most significant bit of the first accumulated phase value and the most significant bit of the second accumulated phase value when the most significant bit of both said first accumulated phase value and said second accumulated phase value are simultaneously 1.

- 2.2 The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).
- 2.3 The problem to be solved by the present invention may be regarded as avoiding an overflow of the accumulated phase and making it easier to obtain a difference between the two accumulated phase values.
- 2.4 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

there is no hint in D1 or D2 to the problem of overflowing of the accumulated phase value nor to the proposed solution. The person skilled in the art would not arrive to such a solution without exercising an inventive step.
- 2.5 The same arguments apply mutatis mutandis to independent claim 8, defining corresponding phase-locked loop, and independent claim 14, defining corresponding phase comparator, so that they also meet the requirements of the PCT with respect to novelty and inventive step.
- 2.6 Claims 2-7, 9-13, 15-18 are dependent on claims 1, 8 or 14, and as such also meet the requirements of the PCT with respect to novelty and inventive step.
- 3 The subject-matter of claims 1-18 is industrially applicable.